

Traffic and Safety Advisory

TSA 2008 - 02
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Traffic and Safety Advisory
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Non-Illuminated Case Signs vs LED Case Signs

Traditionally, the Michigan Department of Transportation (MDOT) has installed illuminated case signs at signalized intersections as a means to provide supplemental information. Historically, these case signs were internally illuminated with mercury vapor lighting. Starting January 31, 2008, mercury vapor lighting is no longer available due to environmental concerns and energy inefficiency. MDOT, with other state departments, has been asked by the Governor to reduce power consumption by 10 percent. Traffic signals are one area where the department is concentrating its efforts to reduce electrical consumption.

There are no specific requirements for providing lighted case signs at signalized intersections. MDOT did a nationwide survey to determine what type of case sign is used for signalized intersections and found there were few agencies, outside of Michigan, that used any type of case sign. Michigan has traditionally used case signs; therefore, driver expectancy is high.

Manufacturers of Light Emitted Diode (LED) case signs are difficult to find due to the lack of a market. MDOT has reviewed prototype LED case signs, but

power consumption savings are not as substantial as LED signal heads. LED case signs reduce power consumption by about 50 percent in comparison to traditional mercury vapor case signs. Also, available LED case signs are quite expensive.

Initially, there was some thought to stop using case signs altogether but driver expectancy is important so MDOT developed a non-illuminated case sign alternative with high retroreflective sign sheeting panels installed in the current case sign housing. This case sign is similar to what the Road Commission of Oakland County has used for the last five years with no issues forthcoming. Since no power is necessary for the non-illuminated case sign, there is substantial annual cost savings over mercury vapor and LED lighting.

It is anticipated this type of case sign will work well at locations with ambient lighting but may not be adequate at rural areas with minimal ambient lighting. Since MDOT anticipates using some LED case signs, it is hoped LED manufacturers will see the potential market and develop a product that is not only more cost effective but also more energy efficient than currently available.

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The Traffic Signals Unit recently asked for guidance from the Engineering Operations Committee (EOC) on the use of case signs. The final decision from the EOC was to use non-illuminated case signs at locations with high ambient lighting and use LED type case signs only at locations with little ambient lighting (rural, isolated intersections). Also, if a location has some type of history where additional signage would be helpful, an LED case sign should be used. Another thing to keep in mind when reviewing locations is power consumption and the increased numbers of case signs necessary with implementation of the box span design. Case sign installation at an intersection for diagonal signal design was typically one four-way case sign in the center of the intersection. With box span design, each approach now must have its own case sign for a total of four at a typical intersection. That, coupled with an energy consumption which is about half that of the old mercury vapor design, means a typical four legged intersection using box span design (LED case sign) will consumer more power than a diagonal span design (mercury vapor) installation.

The Traffic Signals Unit will work in cooperation with local Regional/TSC personnel to determine which type of case sign will be needed. In those locations for which an agreement cannot be made, the final decision will be the

responsibility of the Traffic Signals Unit. The final decision will be based on needs of the intersection and the goal of reducing power consumption whenever possible.